

What is claimed is:

Sub A1

1. A power sequence apparatus comprising:
a power supply for simultaneously generating a gate high voltage and a gate low voltage;

5 gate high voltage and then the gate low voltage to a device; and

10 a voltage controller disposed between the power supply and the device driving circuit, and processing the gate high voltage using a plurality of switching circuits to supply the gate high voltage after the gate low voltage is supplied to the device driving circuit.

2. The power sequence apparatus according to claim 1, wherein the voltage controller includes:

15 a first switching circuit disposed between the power supply and the device driving circuit to switch to the device driving circuit the gate high voltage that is output from the power supply; and

20 a second switching circuit connected between the first switching circuit and a gate low voltage output line of the power supply to control a switching point of the first switching circuit.

3. The power sequence apparatus according to claim 2, wherein the voltage controller further includes:

25 a first resistor and a capacitor connected in parallel between the second switching circuit and the gate low voltage output line for switching the second switching circuit according to a RC time constant of the first resistor and the capacitor; and

a second resistor connected between the second switching circuit and a ground voltage source for discharging a charged voltage of the capacitor to the ground voltage source.

5 4. The power sequence apparatus according to claim 2, wherein the voltage controller further includes:

a RC circuit disposed between the second switching circuit and the gate low voltage output line of the power supply.

10 5. The power sequence apparatus according to claim 2, wherein the first switching circuit and the second switching circuit are integrated into a single chip.

6. The power sequence apparatus according to claim 2, further comprising:

15 a current control resistor connected between the first switching circuit and the second switching circuit for controlling a switching speed of the first switching circuit.

20 7. The power sequence apparatus according to claim 2, wherein at least one of the first and second switching circuits includes a transistor.

8. A power sequence apparatus comprising:

a power supply for simultaneously generating a gate high voltage and a gate low voltage;

25 a device driving circuit sequentially supplying the gate high voltage and the gate low voltage to a device;

a switching part disposed between the power supply and

the device driving circuit, and switching the gate high voltage to supply the gate high voltage to the device driving circuit after the gate low voltage is supplied to the device driving circuit; and

5 a timing control part generating a switching control signal to the switching part to control a switching action of the switching part.

9. The power sequence apparatus according to claim 8, wherein the switching part includes:

10 a first switching circuit connected between the power supply and the device driving circuit for switching to the device driving circuit the gate high voltage output from the power supply; and

15 a second switching circuit connected between the first switching circuit and a gate low voltage output line of the power supply for controlling a switching point of the first switching circuit according to the switching control signal from the timing control part.

10. The power sequence apparatus according to claim 9,
20 wherein at least one of the first and second switching circuits includes a transistor.

11. The power sequence apparatus according to claim 8, wherein the timing control part supplies the switching control signal to the switching part after a driving power is supplied to the power supply and after the gate low voltage is supplied from the power supply to the device driving circuit.

12. A display device comprising:

5 a display panel for displaying an image;
a data driver for driving the display panel;
a power supply for simultaneously generating a gate high voltage and a gate low voltage;
10 a voltage controller sequentially supplying the gate high voltage and then the gate low voltage to a gate driver using first and second switching circuits; and
the gate driver for sequentially supplying the gate high and low voltages output from the voltage controller to
10 gate lines of the display panel.

13. The display device according to claim 12, wherein the voltage controller includes:

15 the first switching circuit disposed between the power supply and the gate driver to switch to the gate driver the gate high voltage that is output from the power supply; and
the second, switching circuit connected between the first switching circuit and a gate low voltage output line of the power supply to control a switching point of the first switching circuit.

20 14. The display device according to claim 13, wherein the voltage controller further includes:

25 a first resistor and a capacitor connected in parallel between the second switching circuit and the gate low voltage output line for switching the second switching circuit according to a RC time constant of the first resistor and the capacitor; and

30 a second resistor connected between the second switching circuit and a ground voltage source for discharging a charged voltage of the capacitor to the ground voltage source.

15. The display device according to claim 12, further comprising:

5 a current control resistor connected between the first switching circuit and the second switching circuit for controlling a switching speed of the first switching circuit.

16. The display device according to claim 12, wherein at least one of the first and second switching circuits 10 includes a transistor.

17. A display device comprising:

15 a display panel for displaying an image;
a data driver for driving the display panel;
a power supply for simultaneously generating a gate high voltage and a gate low voltage;
a gate driving circuit sequentially supplying the gate high voltage and the gate low voltage to gate lines of the display panel;

20 a switching part disposed between the power supply and the gate driving circuit, and switching the gate high voltage to supply the gate high voltage to the gate driving circuit after the gate low voltage is supplied to the gate driving circuit; and

25 a timing control part generating a switching control signal to the switching part to control a switching action of the switching part.

18. The display device according to claim 17, wherein the switching part includes:

a first switching circuit connected between the power

7 supply and the gate driving circuit for switching to the gate driving circuit the gate high voltage output from the power supply; and

5 a second switching circuit connected between the first switching circuit and a gate low voltage output line of the power supply for controlling a switching point of the first switching circuit according to the switching control signal from the timing control part.

10 19. The display device according to claim 18, wherein at least one of the first and second switching circuits includes a transistor.

15 20. A method of driving a power sequence apparatus, comprising the steps of:

generating a gate high voltage and a gate low voltage;
15 supplying the gate high voltage to a gate driving circuit by using a plurality of switching circuits to switch the gate high voltage after the gate low voltage is supplied to the gate driving circuit; and

20 sequentially supplying the gate low voltage and the gate high voltage to a plurality of electrodes.